IN THE CLAIMS:

1.   (currently amended) A system for collecting hemodynamic data from a patient and utilizing said data to optimize a cardiac pacing regimen for said patient, comprising:

> a ~~hemodynamic monitor~~ means for ~~continuously~~ collecting hemodynamic data of a patient during periods of rest and periods wherein said patient is performing the activities of daily living and for storing said collected hemodynamic data;

> a means for monitoring and/or stimulating cardiac tissue of a patient to one of provide ~~or~~ restore a desired cardiac rhythm; and

> a means for integrating at least a portion of the collected hemodynamic data with the means for monitoring and/or stimulating cardiac tissue to optimize one or more hemodynamic characteristics of said patient.

2.   (currently amended) A system according to claim 1, wherein the <u>means for collecting</u> hemodynamic <u>data</u> ~~monitor means~~ compris<u>es</u> ~~a~~ one of the following transducers, each of which provides an output signal directly or indirectly indicative of at least one hemodynamic metric of the patient:

> an absolute pressure sensor adapted to be fluidly coupled to a cardiac chamber of the patient, an absolute pressure sensor adapted to be fluidly coupled to a pulmonary artery of a patient, an absolute or a differential pressure sensor adapted to be fluidly coupled to a portion of the ~~vasculature~~ <u>vasculature</u> of a patient.

3.   (original) A system according to claims 1, wherein the means for monitoring and/or stimulating comprises a one of the following:

> a pulse generator, a implantable pacemaker, an implantable cardioverter defibrillator, a muscle stimulation apparatus, an external pacemaker.

4.   (currently amended) A system according to claim 3, wherein the ~~hemodynamic monitor~~ means for collecting hemodynamic data comprises ~~a~~ one of the following:

an absolute pressure sensor adapted ~~acapted~~ to be fluidly coupled to a cardiac chamber of the patient, an absolute pressure sensor adapted to be fluidly coupled to a pulmonary artery of a patient, a differential pressure sensor adapted to be fluidly coupled to a portion of the vasculature ~~vacsulature~~ of a patient, an implantable absolute pressure sensor coupled to an external reference pressure signal; and

wherein an activity-level measurement means is optionally coupled to said patient and an output signal of said activity-level measurement means is time-synchronized to the ~~hemodynamic monitor~~ means for collecting hemodynamic data and said activity-level measurement means is derived from an accelerometer transducer or a piezoelectric crystal transducer ~~tranducer~~.

5.   (original) A method of optimizing the hemodynamics of a patient having an implantable cardiac rhythm stimulation and monitoring device, comprising the steps of:

collecting hemodynamic data from said patient, during a period of time when a heart rate of the patient is elevated above a resting rate due to activity by said patient, with a hemodynamic monitor adapted to be disposed in fluid contact with a volume of venous blood of said patient;

storing said hemodynamic data in a computer readable memory medium;

collecting cardiac event data from the patient;

storing the cardiac event data in a computer readable memory medium;

analyzing said hemodynamic data in conjunction with said cardiac event data to determine a cardiac stimulation sequence intended to optimize the hemodynamics of said patient; and

providing said cardiac stimulation sequence to an implantable cardiac
rhythm stimulation and/or monitoring device.

6.   (currently amended) A method according to claim 5, wherein said
hemodynamic data is at least a one of the following:
    a right ventricular systolic pressure, a right ventricular diastolic pressure, a
    pressure signal sensed in the right ventricle, an estimated pulmonary
    artery diastolic pressure, a pulmonary artery diastolic pressure, an
    estimated pulmonary artery systolic pressure, a pulmonary artery systolic
    pressure, a heart rate, a dP/dt value (i.e., a first derivative) of one of the
    foregoing pressure(s), a
    d^2P/dt^2 value (i.e., a second derivative) of one of the foregoing
    pressure(s).

7.   (original) A method according to claim 5 or claim 6, wherein the
hemodynamic data is collected substantially continuously, periodically, at a pre-
determined time of day, at a pre-determined interval, while the patient is at rest,
while the patient is performing typical daily activities for said patient, while the
patient is strenuously exercising, and/or while the patient is exercising mildly.

8.   (currently amended) A method according to claim 5 or claim 7, wherein
during the providing step at least one of the following parameters comprises a
part of the cardiac stimulation sequence: an A-V interval, a sensed-AV interval,
a paced-AV interval, a V-V interval, a V-A interval, a heart rate.

9.   (original) A method according to claim 5 or claim 8, wherein the
implantable cardiac rhythm stimulation and/or monitoring device comprises a bi-
ventricular device.

10.   (original) A method according to claim 9, wherein said implantable cardiac
rhythm stimulation and/or monitoring device is programmed to at least one of the
following pacing mode(s): a dual chamber pacing mode, a ventricular pacing

regime; a dual chamber sensing regime; a trigger, null and/or inhibit delay response regime (in response to a sensed cardiac event); or a rate-responsive variant thereof.

11.   (original) A method according to claim 5, claim 7 or claim 9, wherein the hemodynamic data is collected using at least one of the following data collection models:

      for a set of different A-V intervals during pacing at a common heart rate,

      for a first set of different heart rates using a common A-V interval, or

      for a second set of different heart rates constrained in a predetermined range

      for a preselected period of time.

12.   (original) A method according to claim 11, wherein, as applicable:

      the set of different A-V intervals comprises a range of between of about 80 ms and about 350 ms;

      the first set of different heart rates is between about 40 bpm and about 180 bpm;

      the second set of different heart rates is between about 40 bpm and 180 bpm; and

      the preselected period of time is between a few minutes and several days.

13.   (original) A method according to claim 12, wherein the cardiac stimulation sequence comprises data based at least in part on the lowest estimated pulmonary artery diastolic pressure measured during collection of the hemodynamic data.

14.   (original) A computer readable medium for performing a method for optimizing hemodynamics of a patient using hemodynamic data collected from said patient, comprising:

      instructions for collecting hemodynamic data from said patient, during a

         period of time when a heart rate of the patient is elevated above a

resting rate due to activity by said patient, with a hemodynamic
monitor adapted to be disposed in fluid contact with a volume of
venous blood of said patient;

instructions for storing said hemodynamic data in a computer readable
memory medium;

instructions for collecting cardiac event data from the patient;

instructions for storing the cardiac event data in a computer readable
memory medium;

instructions for analyzing said hemodynamic data in conjunction with said
cardiac event data to determine a cardiac stimulation sequence
intended to optimize the hemodynamics of said patient; and

instructions for providing said cardiac stimulation sequence to an
implantable cardiac rhythm stimulation and/or monitoring device.